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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/719,401	11/21/2003	Steven R. Sedlmayr	AUO1011	3331

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Law Office of Roxana H. Yang
P.O. Box 400
Los Altos, CA 94023

EXAMINER	
FINEMAN, LEE A	

ART UNIT	PAPER NUMBER
2872	

DATE MAILED: 09/08/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/719,401	SEDLMAYR, STEVEN R.	
	Examiner	Art Unit	
	Lee Fineman	2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *51-124* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *51-124* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 November 2003* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, "passing one of the substantially collimated primary resolved beams of electromagnetic energy/light through a means for changing...includes passing one of the substantially collimated primary resolved beams of electromagnetic energy/light through a liquid crystal device" (claims 60, 78, 97, 115) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. While the claims are considered part of the original disclosure, a written description of the claimed details must be described in the specification. Accordingly, the specification should be amended to include the system and method wherein the step of passing one of the substantially collimated **primary resolved beams** of electromagnetic energy/light through a means for changing the selected predetermined orientation of the chosen component of the electromagnetic wave field vectors includes passing one of the substantially collimated **primary resolved beams** of electromagnetic energy/light through **a liquid crystal device** for changing the selected predetermined orientation of the chosen component of the electromagnetic wave field vectors. The specification seems to support only wherein a means for changing the selected predetermined orientation of the chosen component of the electromagnetic wave field vectors includes passing one of the substantially collimated primary resolved beams of electromagnetic energy/light through a halfwave plate or mirrors/reflectors with coatings for changing the selected predetermined orientation of the chosen component of the electromagnetic wave field vectors. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 50-57, 59, 61, 69-75, 77, 79, 88-94, 96, 98, 106-112, 114 and 116 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurematsu et al., U.S. Patent No 5,153,752 in view of Konno et al., U.S. Patent No 4,497,015.

Kurematsu et al. disclose in fig. 2 a system and method of producing a modulated beam of electromagnetic energy/light comprising

[a] means (20) for providing a substantially collimated (column 6,lines 23-24) primary beam of electromagnetic energy/light having a predetermined range of wavelengths;

[b] means (21) for resolving from the substantially collimated primary beam of electromagnetic energy/light a substantially collimated primary first resolved beam (S_1) of electromagnetic energy/light having substantially the first selected predetermined orientation (S) of a chosen component of the electromagnetic wave field vectors and a substantially collimated primary second resolved beam (P_2) of electromagnetic energy/light having substantially a second selected predetermined orientation (P) of a chosen component of the electromagnetic wave field vectors, whereby the first and second selected predetermined orientation of the chosen component of the electromagnetic wave field vectors are different from one another (S versus P) and further including means (22) for passing one of the substantially collimated primary resolved beams (P_2) of electromagnetic energy/light through a means (22) for changing a selected predetermined orientation of a chosen component of electromagnetic wave field vectors and changing the selected predetermined orientation (to S) of the chosen

component of the electromagnetic wave field vectors of one of the substantially collimated primary resolved beam of electromagnetic energy to match substantially the selected predetermined orientation of the chosen component of the electromagnetic wave field vectors of the other substantially collimated primary resolved beam of electromagnetic energy;

[c] means (22 and 23) for forming from the substantially collimated primary first resolved beam of electromagnetic energy/light and the substantially collimated primary second resolved beam of electromagnetic energy/light a substantially collimated initial beam (S_1 and S_2) of electromagnetic energy/light having substantially the same selected predetermined orientation (S) of a chosen component of electromagnetic wave field vectors substantially across the substantially collimated initial beam of electromagnetic energy/light;

[d] means (24) for separating the substantially collimated initial beam of electromagnetic energy/light into two or more substantially collimated separate beams of electromagnetic energy/light (R(S), G(S), B(S)), each of the substantially collimated separate beams of electromagnetic energy/light having a selected predetermined orientation of a chosen component of electromagnetic wave field vectors and includes means (24) for separating the substantially collimated initial beam of electromagnetic energy/light into two or more substantially collimated separate beams (R(S), G(S), B(S)) of electromagnetic energy/light whereby each of the substantially collimated separate beams of electromagnetic energy/light has substantially the same selected predetermined orientation (S) of the chosen component of the electromagnetic wave field vectors substantially across each of the substantially collimated separate beams of

electromagnetic energy/light as that of the other substantially collimated separate beams of electromagnetic energy/light;

[e] means (25R, 25G, 25B) for altering the selected predetermined orientation of the chosen component of the electromagnetic wave field vectors of a plurality of portions of each of the substantially collimated separate beams of electromagnetic energy/light by passing the plurality of portions of each of the substantially collimated separate beams of electromagnetic energy/light through a respective one of a plurality of altering means whereby the selected predetermined orientation of the chosen component of the electromagnetic wave field vectors of the plurality of portions of each of the substantially collimated separate beams of electromagnetic energy/light is altered in response to a stimulus means by applying a signal means to the stimulus means in a predetermined manner as the plurality of portions of each of the substantially collimated separate beams of electromagnetic energy/light passes through the respective one of the plurality of means for means for altering the selected predetermined orientation of the chosen component of the electromagnetic wave field vectors (column 6, line 45-column 7, line 26);

[f] means (24) for combining each of the substantially collimated altered separate beams of electromagnetic energy/light with the other substantially collimated altered separate beams of electromagnetic energy/light into a substantially collimated single collinear beam of electromagnetic energy/light without substantially changing the altered selected predetermined orientation of the chosen component of the electromagnetic wave field vectors of the plurality of portions of each of the substantially collimated separate beams of electromagnetic energy/light (column 7, lines 27-37);

[g] means (21 and 23) for resolving from the substantially collimated single collinear beam of electromagnetic energy/light a substantially collimated first resolved beam of electromagnetic energy/light having substantially a first selected predetermined orientation of a chosen component of electromagnetic wave field vectors and a substantially collimated second resolved beam of electromagnetic energy/light having substantially a second selected predetermined orientation of a chosen component of electromagnetic wave field vectors, whereby the first and second selected predetermined orientation of the chosen component of the electromagnetic wave field vectors are different from one another;

and further a means (26) for passing one of the substantially collimated resolved beams (P_1 and P_2) of electromagnetic energy from step [g] to a projection means (not shown) and a means (24) for adjusting the electromagnetic/light spectrum of at least one of the separate beams of electromagnetic energy/light in which the means for adjusting the electromagnetic/light spectrum of at least one of the separate beams of electromagnetic energy/light includes means for adjusting a predetermined range of wavelengths (the dichroic mirrors filter specific wavelengths e.g. blue) and a magnitude (in so far as the magnitude of the remove wavelength is adjusted to zero) of at least one of the separate beams of electromagnetic energy/light.

Kurematsu et al. disclose the claimed invention except for the beam being a substantially uniform flux intensity substantially across the beam of electromagnetic energy/light and a rectangular cross sectional area. Konno et al. disclose a light illumination device (fig, 5) which produces a primary beam (at M) which has a substantially uniform flux intensity substantially across the initial beam of light (column

5, lines 43-52) and has a rectangular cross sectional area (using lens element 102, fig. 3; column 3, lines 5-8). It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the light source 20 of Kurematsu et al. with that of Konno et al. to have a more uniform intensity light beam and provide a more consistent image. The method of utilizing the structure of the claim is inherent therein.

5. Claims 62-64, 80-82, 99-101 and 117-119 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurematsu et al. in view of Konno et al. as applied to claims 51, 69, 88 and 106 above, and further in view of Southwell, U.S. Patent No. 4,312,570.

Kurematsu et al. in view of Konno et al. as applied to claims 51, 69, 88 and 106 above disclose the claimed invention except for wherein step [c] further comprises the step of means for reflecting one of the substantially collimated primary resolved beams of electromagnetic energy/light from one or more reflecting means, each of the reflecting means having means for changing the selected predetermined orientation of the chosen component of the electromagnetic wave field vectors; wherein the step of means for reflecting one of the substantially collimated primary resolved beams of electromagnetic energy/light from one or more reflecting means, each of the reflecting means having means for changing the selected predetermined orientation of the chosen component of the electromagnetic wave field vectors includes means for reflecting one of the substantially collimated primary resolved beams of electromagnetic energy/light from one or more planar reflecting surface with a dielectric coating, each planar reflecting surface with a dielectric coating having means for changing the selected predetermined orientation of the chosen component of the electromagnetic wave field vectors; and

wherein the step of means for reflecting one of the substantially collimated primary resolved beams of electromagnetic energy/light from one or more reflecting means, each of the reflecting means having means for changing the selected predetermined orientation of the chosen component of the electromagnetic wave field vectors includes means for reflecting one of the substantially collimated primary resolved beams of electromagnetic energy/light from one or more mirrors having a thin film dielectric material, each mirrors having a thin film dielectric material having means for changing the selected predetermined orientation of the chosen component of the electromagnetic wave field vectors. Southwell teaches a mirror (figure) which is a reflecting means having means (f_1-f_4) for changing the selected predetermined orientation of the chosen component of the electromagnetic wave field vectors (column 1, lines 49-64), which are one or more planar reflecting surface with a dielectric coating, each planar reflecting surface with a dielectric coating having means for changing the selected predetermined orientation of the chosen component of the electromagnetic wave field vectors. Further Southwell teaches that his mirror is an equivalent in the art to a wave/phase plate (column 1, lines 31-34). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to use mirrors of Southwell instead of a half wave plate in the system of Kurematsu et al. in view of Konno et al. to provide a more flexible system by being able to direct or redirect the beam along a different beam path while maintaining the change of the selected predetermined orientation.

6. Claims 65-67, 83-85, 102-104 and 120-122 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurematsu et al. in view of Konno et al. and Southwell as

applied to claims 62, 80, 99 and 117 above, and further in view of Lee, U.S. Patent No. 5,121,983.

Krematsu et al. in view of Konno et al. and Southwell as applied to claims 62, 80, 99 and 117 above disclose the claimed invention except for further comprising the step of means for removing from at least one of the beams of electromagnetic energy at least a predetermined portion of a predetermined range of wavelengths and directing the removed portions to an absorption means. Lee teaches a projector (fig. 3) with filter means (J) for removing and absorbing from at least one of the beams of electromagnetic energy at least a predetermined portion of a predetermined range of wavelengths (column 4, lines 35-37). It would have been obvious to one of ordinary skill in the art at the time the invention was made to add the filter of Lee to the system of Krematsu et al. in view of Konno et al. and Southwell to remove the infrared rays and reduce the heat of the system.

7. Claims 58, 68, 76, 86, 95, 105, 113 and 123 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krematsu et al. in view of Konno et al. as applied to claims 51, 52, 69, 70, 88, 89, 106 and 107 above, and further in view of Krematsu et al, U.S. Patent No. 5,267,029 (henceforth Krematsu-983).

Regarding claims 58, 76, 95 and 113, Krematsu et al. in view of Konno et al. as applied to claims 51, 69, 88, and 106 above discloses the claimed invention except for wherein step [d] includes means for separating the substantially collimated initial beam of electromagnetic energy/light into two or more substantially collimated separate beams of electromagnetic energy/light whereby each of the substantially collimated separate beams

of electromagnetic energy/light has a substantially different selected predetermined orientation of the chosen component of the electromagnetic wave field vectors substantially across each of the substantially collimated separate beams of electromagnetic energy/light as that of the other substantially collimated separate beams of electromagnetic energy/light; and further comprising the step of means for removing from the substantially collimated primary beam of electromagnetic energy/light at least a predetermined portion of a predetermined range of wavelengths and directing the removed portions to an absorption means. Kurematsu-983 teaches in fig. 1 a system and method for producing a modulated beam of light includes a means (10 and 11) for separating the substantially collimated initial beam (P_w) of electromagnetic energy/light into two or more substantially collimated separate beams (S_R and P_B+P_G) of electromagnetic energy/light whereby each of the substantially collimated separate beams of electromagnetic energy/light has a substantially different selected predetermined orientation of the chosen component of the electromagnetic wave field vectors substantially across each of the substantially collimated separate beams of electromagnetic energy/light as that of the other substantially collimated separate beams of electromagnetic energy/light; and further comprising the step of means (4 or 8) for removing from the substantially collimated primary beam of electromagnetic energy/light at least a predetermined portion (S_R and P_G or P_B) of a predetermined range of wavelengths and directing the removed portions to an absorption means (not shown). It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a means to provide two or more substantially collimated separate beams (S_R and P_B+P_G) of electromagnetic energy/light whereby each of the substantially collimated

separate beams of electromagnetic energy/light has a substantially different selected predetermined orientation of the chosen component of the electromagnetic wave field vectors and means to remove and absorb different portions of the beam to the system of Kurematsu et al. in view of Konno et al. as suggested by Kurematsu-983 to provide a more flexible system which is able to be used with a display with specific orientation and wavelength requirements.

8. Claims 60, 78, 97 and 115 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurematsu et al. in view of Konno et al. as applied to claims 59, 77, 97 and 115 above, and further in view of Sato et al., U.S. Patent No. 5,042,921.

Kurematsu et al. in view of Konno et al. as applied to claims 59, 77, 97 and 115 above disclose the claimed invention except for wherein the step of means for passing one of the substantially collimated primary resolved beams of electromagnetic energy through a means for changing the selected predetermined orientation of the chosen component of the electromagnetic wave field vectors includes means for passing one of the substantially collimated primary resolved beams of electromagnetic energy through a liquid crystal device for changing the selected predetermined orientation of the chosen component of the electromagnetic wave field vectors. Sato et al. teaches that a half-wave plate and a liquid crystal device are art recognized equivalents (column 4, lines 23-31) in the display/projector art. It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the half-wave plate of Kurematsu et al. in view of Konno et al. with a liquid crystal device as suggested by Sato et al. to enable finer tuning of the orientation.

9. Claims 87 and 124 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kurematsu et al. in view of Konno et al., as applied to claims 70 and 88 above, and further in view of Nishida et al., U.S. Patent No 5,295,005.

Kurematsu et al. in view of Konno et al., as applied to claims 70 and 88 above disclose an illumination system with a light source but are silent to the type of light source and whether it includes providing a primary beam of ultraviolet. Nishida et al. teaches using a metal-halide light source (column 4, lines 42-44), which inherently includes ultraviolet light, in a projector system. It would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the light source of Kurematsu et al. in view of Konno et al. with a metal-halide light source, as suggested by Nishida et al., to provide high luminance and a long life span (Nishida, column 3, lines 26-27).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lee Fineman whose telephone number is (571) 272-2313. The examiner can normally be reached on Monday - Friday 7:30 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on (571) 272-2312. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LAF
August 30, 2004

MARK A. ROBINSON
PRIMARY EXAMINER